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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/428,453 10/28/99 MOTOHASHI

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EXAMINER

RODEE, C

ART UNIT

PAPER NUMBER

1753

DATE MAILED:

06/15/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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Office Action Summary

Application No.
09/428,453

Applicant(s)
Motohashi et al.

Examiner
Christopher RoDee

Group Art Unit
1753



☐ Responsive to communication(s) filed on _____.

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-6 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-6 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4 & 5

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear in the instant claims if applicants are claiming the photoreceptor while it is being rubbed with the cleaning member or are claiming a combination of the photosensitive member and the particles scraped from the photosensitive member by the cleaning member or some other invention or combination. Applicants are reminded that the claims must be limited to a single statutory class of invention as set forth in § 101 (e.g., article, process, etc.). If applicants intend to claim the member in the state of being rubbed then the claims must be amended to recite a process that has a step of rubbing.

It is also unclear how the member relates to the apparatus in claim 5 because the member in its condition during or after the step of rubbing is after each of the recited means has already functioned. It appears that the claim is limited to an apparatus that has already imaged, developed, and transferred the visualized image and is cleaned or in the process of being cleaned because the only member permitted in the apparatus is one that has been cleaned or is being cleaned. It is also unclear in claim 5 what is meant by the phrase "latent image forming means disposed around said photosensitive member and constituting electrophotographic

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process means and for forming the electrostatic image..." because the means may be defined by means, but it is unclear how they are related and which means is limited by the "and for forming" limitation.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Oshiba *et al.* in US Patent 5,721,085.

Oshiba discloses a process and apparatus where a photosensitive member 10 (i.e., photoreceptor) having a charge generation layer 3 and a charge transport layer 4 and 5 are charged by a charging means 11, imaged 12 by a digital or analog device, developed by a developing unit 13 containing toner having an average particle size of 2 to 9 μm (col. 6, l. 60), and transferred by a transfer device to a receiver (col. 6, l. 44-67). After transfer the photoreceptor is cleaned with a cleaning blade 19 that scrapes and removes remaining toner particles 19c that visualized the image from the surface of the photoreceptor (see Figs. 2 & 3). This part of the rejection considers the toner as the "scraped particle" from the surface of the photosensitive member. The surface charge transport layer of the photoreceptor has a charge transport compound, a polycarbonate binder and 2.0 μm fluoro-resin fine particles, which are present in an amount of 10-70 grams per 120 grams of binder and 100 grams of charge transport

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material (Table 1; col. 9). Using the exemplified developers (e.g., Developer 1 with average size of 5 μm ; col. 10) particles having a size within the claimed range would be scraped from the surface of the photoreceptor.

The Examiner also notes that the fluouresin fine particles in the surface layer appear to inherently be removed by the cleaning blade during the cleaning step; this also anticipates the claims.

Claims 1 & 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Okado *et al.* in US Patent 5,733,702.

Okado discloses a photoreceptor having a surface layer containing fine PTFE resin, a charge transport biphenyl compound, and a polycarbonate resin (Example 1; cols. 25-26). The fluorine-resin containing particles having a preferred size of from 0.05 to 2.0 μm (col. 17, l. 12-25). The reference states that the surface of the photosensitive member's surface layer is mechanically abraded (col. 16, l. 1) by a cleaning blade (col. 15, l. 27 - 16, l. 12) during cleaning of the photoreceptor surface. The fluorine-resin fine particles in the surface layer are removed (i.e., abraded) by the cleaning blade during the cleaning step.

The reference exemplifies a toner having a size of 5 μm (Example 8; col. 25). This part of the rejection considers the toner as the "scraped particle" from the surface of the photosensitive member. The copying apparatus used in the examples appears to contain the recited means as the means are all conventional in the art and required for image formation. If applicants have knowledge of the copying apparatus (CLC500) that indicates it does not have the recited means they are asked to bring that information forward.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshiba *et al.* in US Patent 5,721,085 in view of Hanami *et al.* in US Patent 6,040,099.

Oshiba was discussed above. The reference does not specify the amount of toner particles that are scraped from the surface of the photoreceptor and does not disclose a plurality of different resins in the surface charge transport layer. The reference also does not disclose a process cartridge containing the apparatus elements as claimed.

Hanami discloses the usefulness of incorporating a combination of polycarbonates having different viscosity-average molecular weights (see Examples 1-15) where one polycarbonate is silicon-denatured. This surface layer also contains a charge transporting styryl compound. These polymers are useful to improve lubricity, ear resistance, solvent crack resistance, and deformation resistance (col. 2, l. 19-27). The reference states that photoreceptor is usefully employed in an apparatus as shown in the Figures or in the form of a process cartridge where process means are positioned around the photosensitive member (col. 20, l. 28-43).

The Examiner also takes Official Notice that process cartridges containing a photosensitive member and a electrophotographic process means (e.g., exposure means, charging means) that are detachably mounted to an image forming apparatus are well known in the art.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the combination of polycarbonate resins disclosed by Hanami in the charge transport layer of Oshiba because Oshiba is specifically concerned with the cleaning of toner particles from the surface of photoreceptors and Hanami disclosed polycarbonate combinations useful for this purpose. The applied art is sufficiently related in terms of the surface layer being a charge transport layer and the presence of polycarbonates in this surface charge transport layer as to suggest that components would be interchangeable in the inventions with a sufficient likelihood of success. Further Oshiba desires a lubricating material in its surface layer to obtain proper cleaning (e.g., col. 5, l. 1-33) and Hanami provides polymers that meets this requirement (col. 2, l. 23). The art is sufficiently related in both structure and purpose as to suggest alternative use of components with a sufficient expectation of success.

It would also have been obvious to place Oshiba's photosensitive member in a process cartridge because Hanami discloses that process cartridges are alternative embodiments for the automated production of images given the disclosure of image forming apparatuses. Further, process cartridges are well known in the art. The use of the obvious photosensitive member in a known process cartridge is *prima facie* obvious for the production of images for home or office copying.

The amount of toner cleaned from the surface of the toner is directly related to the size and density of the image on the surface of the photoreceptor and residual toner that needs to be cleaned is directly related to this image. The amount of toner that needs to be cleaned (i.e., scraped from the photoreceptor) is therefore a normal processing variable based upon the images that the user reproduces.

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Conclusion

Any inquiry concerning this communication should be directed to Exr. Christopher RoDee at telephone number 703 308-2465 or via the receptionist at 703 308-0661 for general or status inquiries. Submissions by fax (see 1096 OG 30) may be accepted at the following telephone numbers:

Unofficial fax: 703 305-6078
Official fax: 703 305-7718
After Final fax: 703 305-3599


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cdr
13 June 2000